

REMARKS

1. Request for Continued Examination:

The applicant respectfully requests for continued examination of the above-indicated application as per 37 CFR 1.114.

2. Original claim 1:

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Wensley et al. (US 6,316,310):

The final Office Action indicates that the arguments (filed 09/21/2004) made in response to the Office action of 6/29/2004 has been fully considered but they are not persuasive since the features upon which the applicant relies are not recited in the rejected claim(s). The applicants hereinafter highlight the feature of claim 1 that distinguishes the present invention from the cited prior art (Wensley US 6,316,310).

Specifically, the limitation of "the silicon nitride layer serves as a barrier layer for preventing ions of the doped silicate glass film from diffusing into a collar region of the deep trench" is recited in claim 1. In regard to US 6,316,310, the undoped glass layer 108 does not cover the collar region when the thermal process is performed. Accordingly, the undoped glass layer 108 fails to prevent ions of the arsenic doped layer 106 from diffusing into the collar region. The effects of this diffusion into the collar region can be seen by comparing Wensley's Fig.5 and Fig.6. Therefore, claim 1 of the present invention is distinct from the cited prior art.

Consideration of claim 1 is politely requested. Claims 2-6 depend on claim 1 and should be allowed if claim 1 is allowed.

3. Amended claim 7:

Claims 7-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Wensley et al. (US 6,316,310). The applicants hereinafter highlight the feature of claim 7 to distinguish the present invention from the cited prior art (Wensley US 6,316,310).

Claim 7 has been amended to correct a typing error, and no new matter is introduced.

Additionally, the limitation of "the silicon nitride layer serves as a barrier layer for preventing ions of the doped silicate glass film from diffusing into a collar region of the deep trench" is recited in claim 7. In regard to US 6,316,310, the undoped glass layer 108 does not cover the collar region when performing the thermal process. Accordingly, the undoped glass layer 108 fails to prevent ions of the arsenic doped layer 106 from diffusing into the collar region.

In addition, claim 7 further includes the limitation of "forming a recess in the pad oxide layer". The recess works to prevent enlargement of the deep trench (please refer to paragraph [0022]). On the other hand, Wensley does not teach or suggest the step of "forming a recess in the pad oxide layer" or the like. Therefore, claim 7 of the present invention is distinct from the cited prior art.

Consideration of the claim 7 is politely requested. Claims 8-12 depend on claim 7 and should be allowed if claim 7 is allowed.

4. New Claims 13-19:


Claim 13 claims a method for forming a deep trench capacitor

buried plate, and includes the limitation of "depositing a silicon nitride layer on the inner wall of the deep trench after removing the remaining sacrificial layer". Specifically, the step of depositing the silicon nitride layer on the inner wall of the deep trench is performed subsequent to the step of removing the remaining sacrificial layer. Accordingly, the silicon nitride layer covers the inner wall of the deep trench (the collar region) when a thermal process is successively performed. This limitation finds support in the specification in paragraphs [0017] and [0018], and in Figs. 6 and 7, for instance. No new matter is entered. In US 6,316,310, the undoped glass layer 108 is formed on the inner wall of the trench before the photoresist 110 is filled into the trench. Therefore, claim 13 of the present invention is distinct from the cited prior art.

Claims 14-19 are dependent on claim 13, and find support in the specification in paragraphs [0016] to [0022], and in Figs. 5 to 8. Claims 14-19 depend on claim 13 and should be allowed if claim 13 is allowed

Consideration of new claims 13-19 is respectfully requested

Sincerely,



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Note: Please leave a message in my voice mail if you need to talk to me. The time in D.C. is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10 PM in Taiwan).